

An Examination of Correlations Between TOEFL and TOEIC Scores among Hokusei Gakuen Students: An Attempt to Find a Score Conversion Formula

江 口 均

An Examination of Correlations Between TOEFL and TOEIC Scores among Hokusei Gakuen Students: An Attempt to Find a Score Conversion Formula

Hitoshi EGUCHI

Contents

1. Introduction
2. TOEFL as Achievement Test
3. Method
4. Data Analysis
 - Correlation Between TOEIC and TOEFL
 - Score Comparison
 - Correlations and Score Conversion
 - Consideration
5. Conclusion
6. Acknowledgments
7. References
8. Appendix

INTRODUCTION

The purpose of this study is to analyze score distribution and correlation of two standardized tests – the TOEIC and the TOEFL – to determine which offers a better (or more appropriate) measure of the English proficiency of students in the Hokusei Gakuen University English Department.

The Hokusei Gakuen English Department has (primarily? No, exclusively) been using the TOEFL as an evaluation tool of the English education provided at the school by analyzing student scores and determining their development of English proficiency. Both the TOEIC and the

TOEFL are categorized as “Norm-Criterion” tests, so it is also necessary to examine whether using such standardized tests is appropriate to determine students’ development of English proficiency when no direct instruction on such test taking is provided.

The secondary purpose of this study is to create a score conversion formula by analyzing the score distribution and the correlations between the scores of the two tests. As an institute of higher education, Hokusei Gakuen English Department faces the issue of allowing scores of both tests to be used to meet admission requirements. In fact, without a reliable score conversion, the faculty members have to make an estimate based on their experience and impression to set up such score requirements. ETS (Educational Testing Service) used to provide a score comparison formula ($\text{TOEIC} \times 0.348 + 296 = \text{TOEFL}$) based on the data elicited from the first TOEIC conducted in 1979, but ETS advised us not to use the formula any longer. According to our professional intuition/experience as well, the formula is not correct. The formula favors the TOEIC, which means it is very difficult to get the TOEFL score, which the formula

Key words : TOEFL, TOEIC, Assessment, Correlations, Score Conversion

says is equivalent to a certain TOEIC score. However, a paucity of reliable information means that we sometimes rely on the formula to determine a correlation between the TOEIC and the TOEFL. As ETS claims, it does not reflect the reality of the relationship between the tests. Based on newly conducted research, Hemingway (1999) claims that there is a strong correlation ($r=.75$) between the TOEIC and the TOEFL, and provides a score range comparison based on the results and this new comparison seems more reliable (see Appendix).

In this study, by comparing the ETS score range comparison with the data elicited by conducting the TOEIC with 114 Hokusei Gakuen University students, the author examines the score range comparison, and finds a certain score conversion formula to be more reliable to compare such scores for admission purposes.

TOEFL as Achievement Test

The question of what the Hokusei Gakuen English Department is trying to measure by administering the TOEFL every year should be closely examined. First, it is necessary to define two different kinds of tests: *Norm-referenced* and *Criterion-referenced*. Norm-referenced tests (NRTs) aim at measuring test-takers' comprehensive (general) language skills, and their scores or evaluation will be done based on the comparison with other test takers' performance on the test. The test takers have little knowledge of the test items, so the test is usually used as a placement test or proficiency test

(Yoshida, 2007, pp.38-39). The TOEFL and the TOEIC are categorized as this type of test. On the other hand, criterion-referenced tests (CRTs) examine how much of a certain course each student has learned, and test takers know what will be asked on the test (Yoshida, 2007, pp. 38-39). This type of test is used for diagnostic purposes or for checking student achievement of a specific content.

Taking into consideration the characteristics of the test types, neither the TOEFL nor the TOEIC is supposed to be used to measure how much each student achieved from academic course work. Rather, it measures how much general language proficiency was achieved indirectly by taking basic or advanced academics in the curriculum. If the school set such test scores as a graduation criterion or for some credit, it should be carefully administered by clarifying the objectives for doing so.

The author argues that such test scores should be used just as a measure of general language proficiency, not as a measure of academic success, as Neal (1998) and Ng (2008) suggest. Neal (1998) and Ng (2008) show there is no correlation between the academic work in graduate school and in a community college, respectively, and any scores on the TOEFL and GRE. Therefore, it is not plausible for any school to use TOEFL scores as a graduation criterion once students have been admitted to the school. In a questionnaire response, a student who graduated from Hokusei Gakuen University in 2007 criticized the education of the school, claiming that he was the second best on

the TOEFL among the students of that year even though he did not study seriously for the course work at all. There are some people who are skilled at test taking, and if they mistake academic success for getting a good score on a test, the significance of the curriculum and educational objectives can be underestimated. We should be careful in how we treat such test scores in the curriculum.

On the other hand, general language development is expected from taking the courses in the curriculum. So, the quality of English education can be evaluated by such standardized test to prove the effectiveness of a school's education in comparison with other schools' in order to show the superiority of their education to the general public. In this way, it is a difficult matter to decide how the school should treat standardized tests.

The discussion of whether the TOEIC or the TOEFL should be used to measure students' proficiency is another matter. While the TOEFL is mainly used for admission to universities in northern America, the TOEIC is used to measure general proficiency and communication skills in the workplace. Therefore, the focus of the tests is dramatically different. The questions on the TOEFL reflect campus English, and the content is more academic, whereas the TOEIC focuses more on so-called business English.

Because the Hokusei Gakuen English Department emphasizes the academic aspect of the curriculum rather than just development of conversation skills, the use of the TOEFL seems to be more justifiable. However, the school also needs to re-

examine whether the level or quality of English has reached a point where the students can reasonably demonstrate what they have learned at Hokusei Gakuen University on the TOEFL.

In the following section, the author will discuss this again according to the test scores in this study.

Method

The English Department has been using the TOEFL ITP to evaluate their education and to see the students' progress in English proficiency. All the students at Hokusei Gakuen University are required to take the TOEFL ITP once a year. In 2009, the TOEFL ITP was administered to third-year students on August 4th and to second-year students on October 7th. All the students were required to take the test in order to proceed to the following year.

For this study, participants were obtained through an email announcement that the TOEIC was being offered for free, without any mention that scores would be used for research. Seats for 120 students were prepared for the TOEIC and the volunteer students were collected first from the third-year students. About 100 students applied and the rest were collected from second-year students.

The third-year students were selected first in order to avoid undesired variables caused by unwillingness to take the test. The TOEIC score is most needed by third-year students because their job hunting is just a few months ahead, and a high TOEIC score might help them find

a job. By volunteering to take the test, they could take the TOEIC without losing enthusiasm, and taking the TOEIC would be to their advantage.

The data of the participants who had not taken the TOEFL due to being on their one-year overseas study program was removed. As a result, the total number of the participants became 114.

Data Analysis

Correlation Between TOEIC and TOEFL

	TOEIC	TOEFL
Sample	114	114
Mean	612.4	487.9
Median	607.5	487
Mode	630	497
SD	111.8	32.0
Maximum	900	583
Minimum	195	387
Range	705	196
Correlation	0.6458	

(Table1 : Statistics of the TOEIC and TOEFL)

The correlation between the examinees' TOEIC scores and TOEFL total scores was .6458. A correlation of this magnitude indicates a moderate positive linear relationship. We may conclude that there is some overlap in what these tests are measuring, but we need to be careful in this conclusion.

According to the research conducted by ETS, which has become the basis of their score comparison range by the use of data elicited from 360 participants, the two tests showed a strong correlation ($r=.75$). The correlation of the two tests in this study was lower than the one in the study conducted by ETS, and this differ-

ence can be attributed to several factors.

First of all, the learner profile affects the results. ETS conducted their study in the U.S. with international students. International students in the U.S. are better prepared for the TOEFL. If my assumption that the TOEFL is more difficult than the TOEIC is right, they are able to perform well on both tests, and the correlation will be higher than when students are in a foreign country and are more used to general English than to academic English.

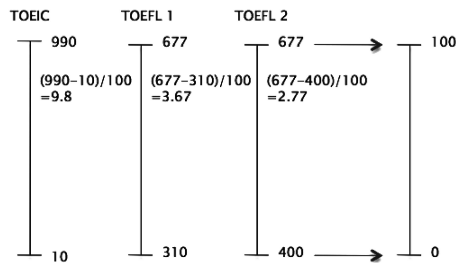
In this study, it is true that some of the students performed better on the TOEFL than they did on the TOEIC, comparing the ranks of the scores on both tests. Some of these students were preparing for the TOEFL because of their desire to be an exchange student in Hokusei's overseas exchange program, even though it cannot be assured that such students' desire affected the results. As I mentioned before, some students had lost interest in scoring high on the TOEFL, and the participants in this study were very eager for the chance to take the TOEIC, which may have resulted in a better TOEIC score. It is very difficult to control such variables, and there may be more factors unnoticed but which had an effect.

As Mitsunashi (2010) suggests, researchers and teachers are not supposed to criticize the reliability of tests based on research with only a small sample size. By doing this research, the author found that it is very difficult to reduce the effects of variables, and the only solution for this problem is to use a large amount of data. Taking this into consideration, in this

study it is too audacious to discuss the full correlation of these two tests, but the discussion focuses on the results of the Hokusei Gakuen students and looks at what we can say about the two tests within this limited environment.

Score Comparison

In order to compare the scores of the TOEIC and TOEFL, both test scores must be recalculated to convert them to the same scale.



(Figure 1 : Score Conversion into a 0-100 scale)

This is one way to convert the scores into a 0-100 scale. First, by dividing the score range (maximum score-minimum score) by 100, the quotient value will be equal to 1 on a 0-100 scale. The maximum possible score of the TOEIC is 990 and the minimum score is 10. Dividing the difference by 100 gives the quotient of 9.8. If

TOEIC score is 500, we have to count how many units of 9.8 are in 500. Dividing 500 by 9.8 equals 51.002 on a scale of 0-100.

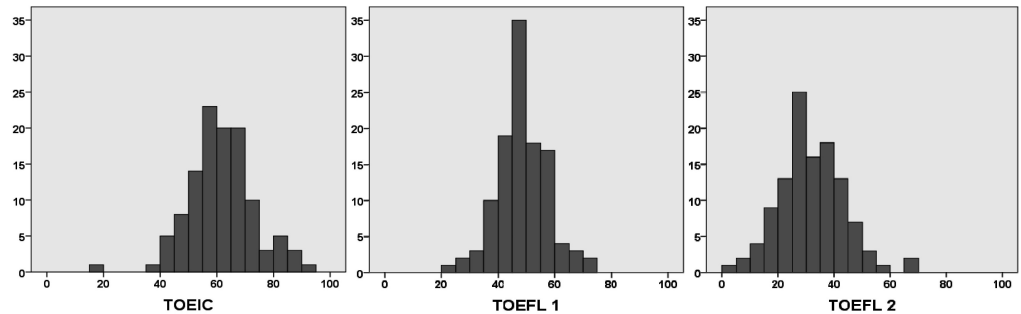
The TOEFL's score range is from 310 to 677. However, it is said that there is no significant meaning in the difference between scores under 400. The TOEFL was created to evaluate the English proficiency of students for admission to universities, so it is meaningless to discriminate between scores which are too low for admission to such schools in detail.

Therefore, the TOEFL 2 represents the score conversion when 400 is the minimum possible score and 0 on a scale from 0-100. One student scored under 400 in this study.

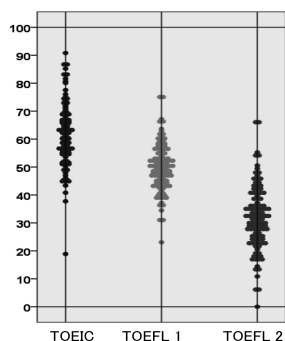
As a result, 1 point is equal to 9.8 in the TOEIC and 3.67 in the TOEFL 1, and 2.77 in the TOEFL 2.

	Converted TOEIC	Converted TOEFL 1	Converted TOEFL 2
Sample	114	114	114
Mean	61.5	48.5	31.8
Median	61.0	48.2	31.4
Mode	63.3	51.0	35.0
SD	11.4	8.7	11.4
Maximum	90.8	74.4	66.1
Minimum	18.9	21.0	0**
Range	71.9	53.4	66.1

(Table 2 : Score Comparison in the Same Scale)



(Graphs 1 - 3 : The Number of Students in Each Score Range)



(Graph 4 : This indicates the dispersion of the scores vertically and the number of the participants who scored in each score range horizontally)

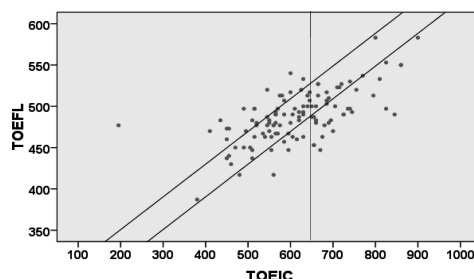
Table 2 and these graphs 1-4 show the following tendencies:

- (1) TOEIC scores disperse in a wider range.
 - The Standard Deviation of TOEIC is 11.4 while that of TOEFL is 8.8.
 - Though the Standard Deviation of TOEIC 2 is the same as that of TOEIC, the range is wider on TOEIC than TOEFL 2.
- (2) As seen in the histograms, more scores gather around the average scores on TOEFL 1 and 2.
- (3) The average score of TOEIC is much higher than that of TOEFL
 - The average score of TOEIC is 61.5 while that of TOEFL 1 is 48.5 and TOEFL 2 is 31.8.
 - The highest score of TOEIC is 90.8 while it is 74.4 on TOEFL 1 and 66.1 on TOEFL 2.

Correlations and Score Conversion

Graph 5 shows how each participant scored in relation to both tests. The range between the two lines indicates the score range, which ETS provides, of the scores

of the two tests that are likely to correspond.



(Graph 5 : Score Dispersion of TOEIC and TOEFL)

Looking at the TOEIC scores, there were 20 (17.5 %) participants who scored above the range, 57 (50%) within the range, and 37 (32.5 %) below the range. From this data, it is quite safe to say that a certain score on one of these tests does not linearly correspond to a certain score on the other as ETS suggests:

... while the two tests are broadly related in that they both measure English proficiency, the purposes, uses, scales, and context of the two tests are different. Therefore, only general comparisons should be made between scores on the two tests. Scores on one test cannot be considered equivalent to scores on the other test. ... Because the TOEIC and TOEFL ITP tests were developed to serve distinctly different purposes, the design, content, and context of each test are also very different. The table above shows only that a student who scores within a certain TOEIC score range is likely to score within a corresponding TOEFL ITP score range. It does not mean that the TOEIC test is equivalent to the TOEFL ITP test or that both tests assess English proficiency equally well at all levels.

But considering the fact that 50% in the participants of this study are within

the score range ETS suggests, the score range comparison seems very reliable. It is also noticeable that there are more participants who scored below the range than those who scored higher, and there are no participants who scored above the range when their TOEIC score was higher than 650.

Consideration

According to the data elicited from this study, several things are made clear. First, the TOEFL is more difficult than the TOEIC. The average score on the TOEIC in the converted scales is much higher than on the TOEFL. The scores on the TOEIC are scattered more widely, and the test discriminates well between high and low proficiency. If the purpose of conducting such a proficiency test is only to measure the student's English proficiency level, the TOEIC is obviously a better test than the TOEFL.

Second, it is clear that the two tests are different tests. Too many variables are in operation in order to conduct a well-controlled experiment to see their correlations, and it is not possible to create a score reliable conversion formula. From this study, it was found that the score range comparison presented by ETS is very reliable, and that could be the best that can be done. There is no direct linear relationship between the scores of the two tests.

From this study, comparing the scores of the participating students, ETS's score range comparison is in favor of the TOEIC, which means that it is more difficult to get the TOEFL scores which ETS

claims, to correspond to the TOEIC scores when the TOEIC score goes over 650 for Hokusei students. In other words, the students who cannot perform well on the TOEFL still have a chance to perform well on the TOEIC. If we rely on ETS's comparison and consider it as a standard, the TOEFL is more difficult than the TOEIC at least for Hokusei students.

The discussion, on whether the TOEFL or the TOEIC should be used to measure the progress of English proficiency should be done based on discussion of the content and goals of education. Hokusei Gakuen University English Department provides basic English courses taught only by native speaking English teachers. By doing so, the school is reputed to be a good school for learning practical English. The practicality of the education might contribute to high TOEIC scores. It may be working to raise TOEFL scores as well, but the students' proficiency level has not reached the level where many students can demonstrate their proficiency well enough to get a high TOEFL score. Because the TOEFL uses more academic topics, it is more difficult.

The students in the English Department are better prepared for the TOEIC than they are for the TOEFL. There has been a long-lasting discussion on whether the school should emphasize more practical aspects of English education or emphasize a more academic side of education. Use of the TOEIC and focusing on teaching practical English could be more appealing to the public because developing practical skills is in fact more in demand than learning academic English.

But in the discussion to determine which test is better as an educational tool, TOEFL can be better TOEIC. Because there are some students who have reached the highest level the TOEIC can measure, the TOEIC cannot provide a further goal. If the test scores should be used to show the superiority of English education over other institutes, the average TOEIC score of 612 is very appealing and conducting the TOEIC has more advantages.

This discussion should be done on the basis of the principles of education and the educational goals of the school. Because of the declining youth population, the competition for enrollment has become more intense, and providing a better education, or improving people's impression of the school, has become more important. A good compromise solution could be that the school conducts both tests, separating the purposes of the tests.

Conclusion

In this study, by conducting the TOEIC with 100 third-year students and 20 of second-year students and comparing their scores with their TOEFL scores, the author analyzes the proficiency of English among the students and examines the use of the TOEFL as a proficiency test to evaluate the education provided by the Hokusei Gakuen University English Department. The TOEFL seems more difficult for these students and the TOEIC seems to perform a better job of discriminating the students widely according to ability.

The most notable characteristic of the scores was seen where the TOEIC scores were over 650. The TOEFL scores of the students who scored 650 or more on the TOEIC are all within the anticipated range or below the range. In other words, it is difficult to get an expected corresponding TOEFL score when the TOEIC scores are higher than 650. The TOEFL uses more academic words and topics in the questions, which may be a reason why the TOEFL is difficult for students. But this quality of the TOEFL can provide higher goals for good students to achieve. The discussion concerning whether the TOEIC or TOEFL should be used to measure the progress of student proficiency should be continued along with the discussion of the education provided at the school.

The attempt to make a score conversion formula was unsuccessful. The TOEFL scores gathered around the average and there are not enough scores to compare, especially scores higher than 530 on the TOEFL in this study. More data is necessary, and the best thing this study could do was to compare the data with the score range comparison that ETS suggests. Even though the score range comparison is reliable, the scores do not always correspond to each other because of many variables which cannot be controlled.

From this study, the author has found that it is too audacious for an individual teacher with a limited sample size to make any generalizations about the correlation between the TOEIC and TOEFL and to attempt to make a score conver-

sion formula. However, by comparing the scores of the TOEIC and TOEFL, there were some important findings about the English proficiency of the students at Hokusei Gakuen University English Department. This study provided a good opportunity to examine the content of the education of Hokusei Gakuen University and the future course of action the school should consider taking.

Acknowledgments

Data analysis and interpretation in this study were supported by the Institute for International Business Communication (IIBC).

This paper is one of the reports of a group project financially supported by the Special Research Grant of Hokusei Gakuen University in 2009. I would like to thank Hokusei Gakuen University for providing this education opportunity for teachers in the English Department.

References

Hemingway, M.A. (1999) English Proficiency Tests: A Comparative Study. Chauncey Group International Ltd.

Institute for International Business Communication. (2010, June). Daigaku Eigo Kyoikudeno TOEIC Tesuto Katsuyo. [University-level English language education and the TOEIC test]. TOEIC Newsletter 108. Tokyo: Mitsuhashi. Retrieved November 1, 2010 from http://www.toEIC.or.jp/sys/letter/News108L_5436.pdf

Neal, M. (1998). The Predictive Validity of the GRE and TOEFL Exams with GGPA as the Criterion of Graduate Success for Interna-

tional Graduate Students in Science and Engineering. Retrieved from ERIC database.

Ng, J. (2008). Test of English as a Foreign Language (TOEFL): Good indicator for student success at community colleges?. *Dissertation Abstracts International Section A*, 69, Retrieved from PsycINFO database.

Yoshida Hiroko (2007) Analyzing an Achievement Test, Kansai University forum for foreign language education 6, 37-51, 2007-03

Appendix: Score Range Comparison (Hemingway, 1999)

Score Range Comparison	
TOEIC	TOEFL
50 – 100	272 – 291
100 – 150	291 – 311
150 – 200	311 – 331
200 – 250	331 – 351
250 – 300	351 – 371
300 – 350	371 – 390
350 – 400	390 – 410
400 – 450	410 – 430
450 – 500	430 – 450
500 – 550	450 – 470
550 – 600	470 – 489
600 – 650	489 – 509
650 – 700	509 – 529
700 – 750	529 – 549
750 – 800	549 – 569
800 – 850	569 – 588
850 – 900	588 – 608
900 – 950	608 – 628
950 – 990	628 – 644
*The table presented here is based on an analysis of the scores of a group of 360 examinees. There will be individuals in a given score range who may score higher, or lower, than indicated here. This table is intended to serve as a guideline only and will not necessarily apply to every individual.	

[Abstract]

An Examination of Correlations Between TOEFL and TOEIC Scores among Hokusei Gakuen Students: An Attempt to Find a Score Conversion Formula

Hitoshi EGUCHI

In this study, by conducting the TOEIC with 100 third-year students and 20 of second-year students and comparing their scores with their TOEFL scores, the author analyzes the proficiency of English among the students and examines the use of the TOEFL as a proficiency test to evaluate the education provided by the Hokusei Gakuen University English Department. In addition, the author attempted to make a score conversion formula between the TOEFL and the TOEIC by looking at the correlation of the scores of the two tests, which was done in vain, but led to some findings about students' proficiency at Hokusei Gakuen University.

Key words : TOEFL, TOEIC, Assessment, Correlations, Score Conversion